CLAIMS

What is claimed is:

1. An implantable cardiac massage apparatus for providing assistance to a heart having an apex and a base, the apparatus comprising:

a chamber array, the array comprising a series of spaced-apart, fluidically coupled chambers the array having fluid input and output ports, and the chambers defining an inside surface which closely conforms to the external surface of a heart and;

pressure regulator means, the pressure regulator means being fluidly coupled to the array input port and output port, the pressure regulator means also being fluidically coupled to;

pump means, the pump means and the pressure regulator means being electronically coupled to;

controller means, the controller means being adapted to actuate the pump means and the pressure regulator means so that fluid is pumped substantially continuously by the pump means to the input port and the pressure regulator means intermittently inflates and deflates the chambers starting at the apex of the heart to create a rhythmic message of the heart from its apex to its base thereby substantially imitating the natural contraction of the heart, the controller means being further adapted to receive sensor information input from;

a cardiac activity/sensor means, cardiac activity sensor/input means, the cardiac activity sensor means being adapted to sense cardiac activity and input sensor information to the controller means.

2. The apparatus of claim 1 which further includes an implanted reservoir means fluidly coupled to the chamber array.

3. An apparatus of claim 1 which further includes an implanted source of electrical energy electronically coupled to the pump means.

4. An apparatus of claim 1 electronically coupled to the controller means.

5. An apparatus of claim 1 wherein the pressure regulator means comprises a pressure-excursion control device.

6. An apparatus of claim 1 wherein the pump means comprises a kinetic pump or axial turbine.

7. A method of mechanically assisting a heart comprising the steps of:

deploying an apparatus of claim 1 about the external surface of the heart;

activating the apparatus by energizing the controller means and in turn the pump means so as to cause fluid to flow through the apparatus;

pulsing fluid flow through the apparatus by opening and closing the valve means, the pulse starting at the apex of the heart and passing to the base of the heart thereby rhythmically massaging the heart from the apex toward its base to enhance the heart's fluid output in a manner similar to unassisted cardiac discharge.